

10/564245

IAP20 Rec'd PGT/PTO 11 JAN 2006

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified application.

With the present Amendment applicant has amended the claims so as to eliminate their multiple dependency.

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,



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What is claimed is:

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- 1) (original) A magnetic sensor system with
  - sensor elements (5, 6) that are sensitive to magnetic fields, the electrical properties of said sensor elements being modifiable according to a magnetic field that can be influenced by a mobile, passive transmitter element (8),  
wherein
  - the magnetic sensor system (1) has two sensor elements (5, 6) in a gradiometer system, each of which is assigned to one of two permanent magnets (2, 3) having a predetermined separation (a).
  - in terms of their dimensions, separation and position relative to the sensor elements (5, 6), the permanent magnets (2, 3) are located such that the offset of the output signal of the sensor elements (5, 6) in the gradiometer system is minimized.
- 2) (original) The magnetic sensor system as recited in Claim 1,  
wherein,
  - at least one homogenizing plate (7) is located between the sensor elements (5, 6) and the permanent magnets (2, 3).
- 3) (currently amended) The magnetic sensor system as recited in Claim 1 or 2,  
wherein,
  - the magnetization of each of the permanent magnets (2, 3) is rotated by a specified angle ( $\alpha$ ) relative to their longitudinal direction facing the sensor elements (5, 6).
- 4) (currently amended) The magnetic sensor system as recited in ~~one of the preceding Claims~~ Claim 1,  
wherein,
  - the magnetic sensor system (1) is used to detect the angle of rotation of a

wheel (8) serving as a transmitter element, the wheel (8) being equipped, on its circumference, with teeth (9) for influencing the magnetic field in the region of the magnetic sensor system (1).

5) (original) The magnetic sensor system as recited in Claim 4, wherein,

- the wheel (8) is a steel wheel.

6) (currently amended) The magnetic sensor system as recited in ~~one of the preceding Claims~~ Claim 1, wherein,

- the sensor elements (5, 6) are magnetoresistive XMR sensors.